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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/669,986	09/23/2003	Lee Kong Weng	70030735-1	4231
57299 7590 01/22/2007 AVAGO TECHNOLOGIES, LTD. P.O. BOX 1920 DENVER, CO 80201-1920			EXAMINER PAYNE, SHARON E	
			ART UNIT	PAPER NUMBER
			2875	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		01/22/2007	PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/669,986

Applicant(s)

WENG ET AL.

Examiner

Sharon E. Payne

Art Unit

2875

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>106,1206</u>  | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION**

***Claim Objections***

1. Claim 2 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The optically transparent material is already in claim 1.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3, 5-6, 8-9, 11-12 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishinaga (U.S. Patent 6,355,946) in view of and Kyocera (JP 2002232017 A).

Regarding claim 1, Ishinaga discloses a standalone light emitting diode package (abstract) comprising a housing comprising sidewalls (Fig. 1) and a substrate (reference number 1), the sidewalls and the substrate defining a cavity having a bottom (Fig. 1, see bottom portion of dotted lines), the substrate

being located at the bottom of the cavity (Fig. 1, reference number 1), portions of the substrate engaging or being adjacent to the sidewalls (Fig. 2, see elliptical dotted line in the middle), the substrate being formed of ceramic (column 3, lines 50-55), at least one light-reflective metallic coating disposed over at least portions of the substrate (column 3, lines 65-68), a light emitting diode mounted on or in the substrate (abstract, Fig. 1), and optically transparent material disposed in the cavity and covering the light emitting diode (column 4, lines 25-30), wherein the ceramic composition of the substrate and the composition of the sidewalls and the light-reflective coating cooperate to minimize light leakage through or into the housing when the light emitting diode is energized (column 4, lines 55-65), the metallic coating reflects light incident thereon in a predetermined direction (column 3, lines 65-68, and Fig. 1), and the optically transparent material protects the light emitting diode (column 4, lines 25-30). Ishinaga does not disclose substantially vertical ceramic sidewalls or a metallic coating disposed over at least portions of the sidewalls.

Kyocera discloses substantially vertical sidewalls (Fig. 4, reference number 33), the substantially vertical sidewalls being formed of ceramic (English abstract), and at least one light-reflective metallic coating disposed over at least portions of the sidewalls (Fig. 4).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the configuration of Kyocera in the apparatus of

Ishinaga to make the apparatus produce more light. See the English abstract of Kyocera.

Concerning claim 2, this claim fails to narrow claim 1 and is rejected for the reasons disclosed in the analysis of claim 1.

Regarding claims 3 and 9, Ishinaga discloses the cavity being substantially white in color (column 4, lines 30-35).

Concerning claim 5 and 11, Ishinaga discloses the metallic coating being comprising gold (column 3, lines 65-68, Fig. 1).

Regarding claims 6 and 12, Ishinaga discloses the metallic coating being formed by plating (column 3, lines 65-68).

Regarding claim 8, Ishinaga discloses a housing having sidewalls (Fig. 1) and a substrate (reference number 1), the sidewalls and the substrate defining a cavity having a bottom (Fig. 3, lower middle), the substrate being located at the bottom of the cavity (Fig. 1), portions of the substrate engaging or being adjacent to the sidewalls (Fig. 1), the substrate being formed of ceramic (column 3, lines 50-55), at least one light-reflective metallic coating being disposed over at least portions of the substrate (column 3, lines 65-68, Fig. 1), a light emitting diode being mounted on or in the substrate (abstract, Fig. 1, reference number 3A), an optically transparent material being disposed in the cavity and covering the light emitting diode (column 4, lines 25-30), the ceramic composition of the substrate and the composition of the sidewalls and the light-reflective coating cooperating to minimize light leakage through or into

the housing when the light emitting diode is energized (column 4, lines 55-65), the metallic coating reflecting light incident thereon in a predetermined direction (column 3, lines 65-68, and Fig. 1), and the optically transparent material protecting the light emitting diode (column 4, lines 25-30), the method comprising providing the housing (Fig. 1), coating at least portions of the substrate with a light-reflective metallic coating (column 3, lines 65-68), mounting the light emitting diode on or in the substrate (Fig. 1, abstract) and depositing the optically transparent material in the cavity (column 4, lines 25-30). Ishinaga does not disclose substantially vertical sidewalls with a metallic coating or the step of coating the sidewalls with the at least one light-reflective metallic coating.

Kyocera discloses substantially vertical sidewalls (Fig. 4, reference number 33), the substantially vertical sidewalls being formed of ceramic (English abstract), at least one light-reflective metallic coating disposed over at least portions of the sidewalls (Fig. 4), and the step of coating the at least portions of the sidewalls with the at least one light-reflective metallic coating (Fig. 4).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the configuration of Kyocera in the apparatus of Ishinaga to make the apparatus produce more light. See the English abstract of Kyocera.

Concerning claim 14, Ishinaga discloses the step of depositing epoxy as the optically transparent material in the cavity (column 4, lines 25-30).

4. Claims 4 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishinaga in view of Kyocera as applied to claims 1 and 8 above, and further in view of Zou et al. (U.S. Patent 6,186,649).

Concerning claims 4 and 10, Ishinaga and Kyocera do not disclose using silver as a reflective coating. Zou et al. discloses the metallic coating comprising silver (column 6, lines 10-15).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the silver coating of Zou et al. in place of the reflective coating of Kyocera to achieve "high output irradiance[.]" See column 1, lines 60-65, of Zou et al.

5. Claims 7 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishinaga in view of Kyocera as applied to claims 1 and 8 above, and further in view of Huang (U.S. Patent 6,715,901).

Regarding claims 7 and 13, Ishinaga and Kyocera do not disclose the cavity being formed to contain a plurality of LEDs. Huang discloses the ceramic cavity being formed to contain a plurality of LEDs (column 4, lines 62-67).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the configuration of Huang in the apparatus of Ishinaga and Kyocera to increase light output per apparatus.

### ***Response to Arguments***

6. Applicant's arguments with respect to claims 1-14 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sharon E. Payne whose telephone number is (571) 272-2379. The examiner can normally be reached on regular business hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on (571) 272-2378. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



Art Unit: 2875

8. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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